



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2019-0960; Product Identifier 2019-CE-049-AD; Amendment 39-19805; AD 2019-23-11]**

**RIN 2120-AA64**

**Airworthiness Directives; Gulfstream Aerospace Corporation Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for all Gulfstream Aerospace Corporation (Gulfstream) Model GVI airplanes. This AD requires revising the airplane flight manual (AFM) for your airplane by adding an airplane flight manual supplement (AFMS), which contains operating limitations and abnormal procedures for loss of rudder or yaw damper. This AD was prompted by a report of an inflight rudder surface shutdown that resulted in lateral-directional oscillations of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The FAA must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this final rule, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402-2206; telephone: (800) 810-4853; fax: (912) 965-3520; email: [pubs@gulfstream.com](mailto:pubs@gulfstream.com); Internet: <https://www.gulfstream.com/customer-support>. You may view this service information at the FAA, Policy and Innovation Division, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. It is also available on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0960.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0960; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Alex Armas, Aerospace Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; phone: (404) 474-5538; fax: (404) 474-5605; email: alex.armas@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

On October 1, 2019, the FAA received a report from Gulfstream of an inflight rudder surface shutdown that resulted in lateral-directional oscillations on a Model GVI airplane. The flight crew experienced an amber “Rudder Fail” crew alerting system message at flight level 340 and was unable to command any movement of the rudder. The flight crew attempted a Flight Control Reset, but the condition remained. Following the rudder shutdown, the airplane experienced sustained lateral-directional oscillations, which persisted for eight minutes before the flight crew was able to stop the oscillations. The flight crew made an emergency landing of the airplane with no rudder authority.

The investigation of this inflight event revealed the root cause as an unstable rudder hinge moment when the aircraft is in a sideslip condition, combined with a rudder surface shutdown, which is inherent to the GVI aircraft type design.

A rudder “shutdown” occurs when the flight control computer detects a rudder control anomaly and commands the rudder hydraulic actuators into damped bypass mode. When this happens, the rudder becomes unusable and “floats” at the aerodynamic neutral position. After a rudder shutdown, the combination of the unstable rudder hinge movement with an airplane sideslip could lead to uncontrollable lateral-directional oscillations of the airplane when operated within the flight envelope at high altitude and high speed.

This condition, if not addressed, could result in catastrophic structural damage or loss of control of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

#### **Related Service Information under 1 CFR part 51**

The FAA reviewed Gulfstream Aerospace G650 Airplane Flight Manual Supplement No. G650-2019-03, dated November 4, 2019; and Gulfstream Aerospace G650ER Airplane Flight Manual Supplement No. G650ER-2019-03, dated November 4, 2019. For the applicable airplane designations, the AFMSs contain new altitude limitations, revised airspeed limitations, and revised abnormal procedures for loss of rudder or yaw damper. These limitations prevent the airplane from operating in the portion of the flight envelope where instability has occurred. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

#### **FAA's Determination**

The FAA is issuing this AD because it evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **AD Requirements**

This AD requires revising the AFM for your airplane by adding the applicable AFMS, which contains limitations to the operating envelope of the airplane and revised abnormal procedures for loss of rudder or yaw damper.

### **Differences Between the AD and the Service Information**

The AFMSs apply to Model GVI airplanes that do not incorporate aircraft service change (ASC) 134. However, this AD applies to all Model GVI airplanes, regardless of whether the airplane has ASC 134. Gulfstream plans to develop a modification, tentatively identified as ASC 134, to correct the unsafe condition and terminate the operating limitations and abnormal procedures in the AFMS.

### **Interim Action**

The FAA considers this AD interim action. Gulfstream is analyzing the airplane lateral-directional oscillations and developing a terminating action that will address the unsafe condition identified in this AD. Once this action is developed, approved, and available, the FAA may consider additional rulemaking.

### **FAA's Justification and Determination of the Effective Date**

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because a rudder shutdown during high altitude and high speed could produce uncontrollable lateral-directional oscillations of the airplane and result in catastrophic structural damage or loss of control of the airplane. Based on data from Gulfstream, the FAA determined that corrective action within 15 days was necessary because of the probability that a recurrence of this event could lead to loss of control of the airplane or catastrophic structural damage. Therefore, the FAA finds good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reasons stated above, the FAA finds that good cause exists for making this amendment effective in less than 30 days.

## Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, the FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include Docket Number FAA-2019-0960 and Product Identifier 2019-CE-049-AD at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

The FAA will post all comments it receives, without change, to <https://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact it receives about this final rule.

## Costs of Compliance

The FAA estimates that this AD affects 262 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Revise the AFM	1 work-hour X \$85 per hour = \$85	Not applicable	\$85	\$22,270

## Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to small airplanes, domestic business jet transport airplanes, and associated appliances to the Director of the Policy and Innovation Division.

### **Regulatory Flexibility Act**

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without notice and comment, RFA analysis is not required.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866, and
- (2) Will not affect intrastate aviation in Alaska.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

**PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2019-23-11 Gulfstream Aerospace Corporation:** Amendment 39-19805; Docket No. FAA-2019-0960; Product Identifier 2019-CE-049-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Gulfstream Aerospace Corporation Model GVI airplanes, all serial numbers, certificated in any category.



**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 27, Flight Controls.

**(e) Unsafe Condition**

This AD was prompted by a report of an inflight rudder surface shutdown that resulted in sustained lateral-directional oscillations of the airplane. The FAA is issuing this AD to provide operating limitations and flight crew procedures in the event of an inflight loss of rudder or yaw damper. The unsafe condition, if not addressed, could result in catastrophic structural damage or loss of control of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Revise the Airplane Flight Manual**

Within 15 days after [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), revise the airplane flight manual for your airplane by adding the applicable airplane flight manual supplement specified below:

(1) Gulfstream Aerospace G650 Airplane Flight Manual Supplement No. G650-2019-03, dated November 4, 2019; or

(2) Gulfstream Aerospace G650ER Airplane Flight Manual Supplement No. G650ER-2019-03, dated November 4, 2019.

**(h) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Atlanta ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local

Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (i) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(i) Related Information**

For more information about this AD, contact Alex Armas, Aerospace Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; phone: (404) 474-5538; fax: (404) 474-5605; email: alex.armas@faa.gov.

**(j) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Gulfstream Aerospace G650 Airplane Flight Manual Supplement No. G650-2019-03, dated November 4, 2019.

(ii) Gulfstream Aerospace G650ER Airplane Flight Manual Supplement No. G650ER-2019-03, dated November 4, 2019.

(3) For service information identified in this AD, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402-2206; telephone: (800) 810-4853; fax: (912) 965-3520; email: pubs@gulfstream.com; Internet: <https://www.gulfstream.com/customer-support>.

(4) You may view this service information at FAA, Policy and Innovation Division, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on December 4, 2019.

Patrick R. Mullen,  
Aircraft Certification Service  
Manager, Small Airplane Standards Branch, AIR-690

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